



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No. : 10/050,413  
Applicant : Charles Pearce et al.  
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Examiner : Norca Liz Torres Velazquez

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Title : Hydroentangled Filter Media And Method

Docket No. : PGI6044P0321US  
Customer No. : 32116

Commissioner For Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

DECLARATION UNDER 37 C.F.R. §1.132

Sir:

Your Declarant, Michael Putnam, hereby states as follows:

I am one of the named inventors on the above-identified application for patent;

I have a Bachelor of Science Degree in Mechanical Engineering, over 27 years of experience in industry in these fields, including over 10 years of experience with the Assignee of the present application, and consider myself to be a person skilled in the art of textile and nonwoven fabric constructs;

I have studied the outstanding Official Action in response to the presently pending claims of our above-identified application, and have studied and am familiar with the cited prior art patent references, including U.S. Patent No. 4,556,601, to Kirayoglu, and U.S. Patent No. 5,240,764, to Haid et al.;

In my opinion, it would not be an obvious expedient to modify the teachings of the Kirayoglu reference in light of the Haid et al. reference, in view of the express teachings in the Kirayoglu reference that the filtration media disclosed therein is specifically described as being not pre-shrunk; this is an important characteristic of our invention, as specified in the pending

Application No. 10/050,413

claims, in order to achieve the necessary performance characteristics for the intended application of the present filtration media;

As specified in our pending claims, the present filtration media is subjected to heat-treatment by heat-setting, whereby the resultant filter media exhibits machine direction and cross-direction shrinkage of less than about 3% at 350° F.;

By virtue of this heat-treatment, the present filter media is particularly suited for baghouse filtration applications, wherein the filter media is typically supported on an associated metal cage;

As known by those skilled in the art, a baghouse filtration application requires that the filtration media periodically be subjected to pulsed, reverse air flow, whereby particulates filtered by the media are dislodged from the media construct to thereby renew its filtration efficiency;

In my opinion, if a filtration media exhibits excessive shrinkage in such a baghouse filtration application, during which temperatures can induce shrinkage, such shrinkage can undesirably result in degradation and abrasion of the filtration media, particularly attendant to reverse-flow dislodgement of particulates, thereby undesirably detracting from the service life of the filter media;

I understand from the Examiner's Official Action that she considers the Haid et al. reference to teach heating a fabric to "above the melting point of fusible fibers [therein] to remelt the fusible fibers and increase the fabric durability and abrasion resistance", and that she considers that the Haid et al. reference "does not suggest that the heat-setting step will produce shrinkage of the fabric bit melting of polyester fusible fibers for bonding purposes";

However, it is my opinion that if the fabric of the Kirayoglu reference is subjected to heat treatment in accordance with the teachings of Haid et al., the fabric of the Kirayoglu reference would be subjected to shrinkage, which is contrary to the express teachings of the Kirayoglu

Application No. 10/050,413

reference which specifies the "fabric not having been subjected to a shrinking operation" (column 10, lines 51-52);

Therefore, in my opinion, it would not be obvious to a person skilled in the art to modify the fabric disclosed in the Kirayoglu reference in accordance with the teachings of the Haid et al. reference;

It is my further opinion that because it would not be obvious to a person skilled in the art to modify the fabric disclosed in the Kirayoglu reference in accordance with the teachings of Haid et al., the Kirayoglu reference cannot be interpreted to teach one skilled in the art how to achieve the novel combination of specific structural and performance characteristics set forth in our presently pending claims;

I am of the further view that the combined teachings of the Kirayoglu and Haid et al. reference upon which the rejection of the presently pending claims is based do not recognize the importance of optimizing porosity of the resultant filter media;

During development of the present invention, it was recognized by myself and my co-inventors that it was necessary to optimize the mean flow pore size (MFP) of the filter media formed in accordance with our invention;

A filter media exhibiting a pore size which is too high results in the efficiency of the resultant media being negatively impacted, while a pore size which is too low undesirably inhibits air flow through the filter media;

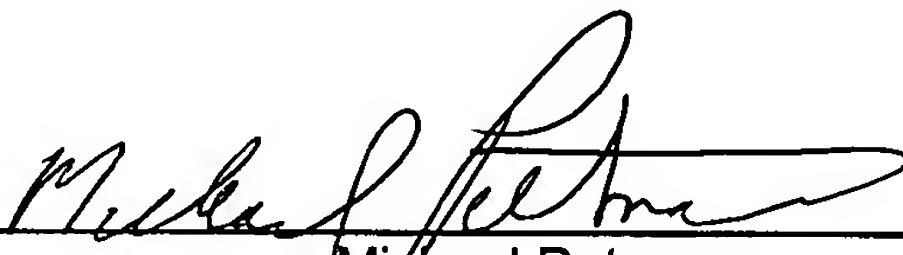
Reduced differential pressure drop through the filter media, achieved by optimizing porosity to maintain filtration efficiency, desirably extends the service life of the filter media, desirably reducing the time required for cleaning, and the required cleaning energy input;

Application No. 10/050,413

In my opinion, the cited Kirayoglu and Haid et al. references do not teach or suggest such to one skilled in the art the importance of optimizing the porosity of filtration media, in accordance with our claimed invention, much less teach or suggest the manner in which said optimized porosity can be achieved, as disclosed in our application;

I declare that all statements made herein on my own knowledge are true, and that all statements made on information and belief are believed to be true, with the understanding that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001, and may jeopardize the validity of the application or any patent issuing under the above-identified application.

Respectfully submitted,

By   
Michael Putnam

Date: 6/29/05